Claims:

1. An inverse multiplexer device comprising an input port for receiving a stream of data packets, a plurality of output ports for connection to outgoing physical links, transmit buffers for preparing outgoing packets, an expansion port capable of receiving packets from said transmit buffers and transferring them through a corresponding expansion port on another like inverse multiplexer to designated output links on the other inverse multiplexer, and a controller for outputting the data packets on a group of any of said links in accordance with an inverse multiplex protocol, whereby said multiplexers can be cascaded to increase the number of output links that can be accommodated.

2. An inverse multiplexer device as claimed in claim 1, wherein said expansion port is connected between said transmit buffers and said output port associated therewith.

3. An inverse multiplexer as claimed in claim 2, further comprising connections normally connecting said output ports with their respective associated transmit buffers, and switches in said connects to divert packets on command through said expansion port to output links on said other device.

4. An inverse multiplexer as claimed in claim 3, wherein said expansion port is connectable into a parallel ring.

5. An inverse multiplexer as claimed in claim 4, wherein said parallel ring carries control messages between said devices.

6. An inverse multiplexer as claimed in claim 4, further comprising address registers for storing the address on said ring of the buffers and output ports connected to the bus.

7. An inverse multiplexer as claimed in claim 6 wherein said ring has a control port common to transmit and receive directions.

8. An inverse multiplexer as claimed in claim 1, further comprising a plurality of input ports for receiving streams of packets from a plurality of physical links, receive buffers for receiving incoming packets on said physical links, an output port for outputting a single stream of packets received on said physical links, and said expansion port also being connected between said input ports and said receive buffers so as to

permit packets arriving on a physical link connected to the like device to be diverted to one of said receive buffers.

9. An inverse multiplexer as claimed in claim 4, wherein each said expansion port comprises a message assembler for assembling outgoing bytes into messages with address containing the destination address, and an address comparator for extracting incoming bytes destined for the device.

10. An inverse multiplexer as claimed in claim 9, wherein the expansion port further comprises a master ring controller for permitting the device to act as a master and controll overall operation of the ring.

11. A method of inverse multiplexing stream of data packets comprising the steps of:

providing at least two like inverse multiplexer devices, each said inverse multiplexer device having an input port for receiving a stream of data packets, a plurality of output ports for connection to outgoing physical links, transmit buffers for preparing outgoing packets, and an expansion port capable of receiving packets from said transmit buffers and transferring them through a corresponding expansion port on another like inverse multiplexer to designated output links on the other inverse multiplexer;

receiving a stream of data packets on the input of one of said inverse multiplexer devices forming a master;

forming an inverse multiplex group comprising physical links connected to at least one other said device; and

transmitting said received packets over said physical links forming the inverse multiplex group in accordance with an inverse multiplexing protocol by passing said packets assigned to links on said other device through said expansion port.

12. A method as claimed in claim 11, wherein said packets are passed to the other device over a parallel ring.

13. A method as claimed in claim 12, wherein said parallel ring is controlled from a common expansion port.

14 ~~15~~. A method as claimed in claim 13, wherein said parallel ring carries control messages between the connected devices.

15. ~~13.~~ A method as claimed in claim 11, wherein said control message comprise a data byte and a control byte.

~~14.~~ A method as claimed in claim 13, wherein said control byte includes the destination address for the data byte.

17. ~~15.~~ A method as claimed in claim 14, wherein said expansion port strips incoming bytes from said control messages when the destination address matches an address on the device and passes the extracted byte to the appropriate output port of delineation block respectively for transmit and receive bytes.

16. ~~16.~~ A method as claimed in claim 15, wherein said expansion port controls a switch connecting the transmit buffers to associated output ports on the same device.